



SEQUENCE LISTING

<110> Kuo, Min-Hao

<120> Autocatalysis/Yeast Two-Hybrid Assay

<130> MSU-08548

<140> 10/773,911

<141> 2004-02-06

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| atactcttcc tttttcaata ttattgaagc atttatcagg gttattgtct catgagcgga | 1860 |

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| cgtatcacga | ggccctttcg | tcttcaagaa | ttaactgtgg | gaatactcag | gtatcgtaag | 2040 |
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 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 15

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Phe Met Ala Arg Thr
 165 170 175

Lys Gln Thr Ala Arg Lys Ser Thr Gly Gly Lys Ala Pro Arg Lys Gln
 180 185 190

Leu Ala Ser Lys Ala Ala Arg Lys Ser Ala Pro Ser Thr Gly Gly Val
 195 200 205

Lys Lys Pro His Arg Tyr Lys Pro Gly Thr Val Ala Leu Arg Glu Ile
 210 215 220
 Arg Arg Phe Gln Lys Ser Thr Glu Pro Gly Ser Pro Ile Leu Gly Tyr
 225 230 235 240
 Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 245 250 255
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 260 265 270
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 275 280 285
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 290 295 300
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 305 310 315 320
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 325 330 335
 Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 340 345 350
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 355 360 365
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 370 375 380
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 385 390 395 400
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 405 410 415
 Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 420 425 430
 Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 435 440 445
 Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys
 450 455 460

Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 465 470 475 480

Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala
 485 490 495

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 500 505 510

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 515 520 525

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 530 535 540

<210> 16
 <211> 541
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 16

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Thr | Ser | Ser | Ser | Glu | Glu | Ser | Ser | Asn | Lys | Gly | Gln | Arg | Gln | Leu |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Thr | Val | Ser | Asn | Tyr | Leu | Phe | Asp | Asp | Glu | Asp | Thr | Pro | Pro | Asn | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Lys | Glu | Ile | Glu | Phe | Gln | Leu | Thr | Thr | Met | Phe | Met | Ala | Arg | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Gln | Thr | Ala | Arg | Lys | Ser | Thr | Gly | Gly | Lys | Ala | Pro | Arg | Lys | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Ala | Ser | Lys | Ala | Ala | Arg | Lys | Ser | Ala | Pro | Ser | Thr | Gly | Gly | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Lys | Pro | His | Arg | Tyr | Lys | Pro | Gly | Thr | Val | Ala | Leu | Arg | Glu | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Arg | Phe | Gln | Lys | Ser | Thr | Glu | Pro | Gly | Ser | Pro | Ile | Leu | Gly | Tyr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Trp | Lys | Gly | Arg | Arg | Asp | His | Pro | Pro | Lys | Ser | Asp | Leu | Ile | Glu | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Gly | Asp | Pro | Glu | Val | Lys | Arg | Val | Lys | Leu | Glu | Asn | Asn | Val | Glu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Ile | Gln | Pro | Glu | Gln | Ala | Glu | Thr | Asn | Lys | Gln | Glu | Gly | Thr | Asp |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Lys | Glu | Asn | Lys | Gly | Lys | Phe | Glu | Lys | Glu | Thr | Glu | Arg | Ile | Gly | Gly |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Glu | Val | Val | Thr | Asp | Val | Glu | Lys | Gly | Ile | Val | Lys | Phe | Glu | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Gly | Val | Glu | Tyr | Thr | Phe | Lys | Glu | Arg | Pro | Ser | Val | Val | Glu | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asn | Glu | Gly | Lys | Ile | Glu | Phe | Arg | Val | Val | Asn | Asn | Asp | Asn | Thr | Lys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Glu | Asn | Met | Met | Val | Leu | Thr | Gly | Leu | Lys | Asn | Ile | Phe | Gln | Lys | Gln |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Leu | Pro | Lys | Met | Pro | Lys | Glu | Tyr | Ile | Ala | Arg | Leu | Val | Tyr | Asp | Arg |
| | 370 | | | | | 375 | | | | | 380 | | | | |

Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 385 390 395 400

Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 405 410 415

Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 420 425 430

Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 435 440 445

Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys
 450 455 460

Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 465 470 475 480

Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala
 485 490 495

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 500 505 510

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 515 520 525

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 530 535 540

<210> 17

<211> 509

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 17

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Ser Gly Arg Gly Lys
 165 170 175

Gly Gly Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Ile
 180 185 190

Leu Arg Asp Asn Ile Gln Gly Ile Ser Gly Ser Pro Ile Leu Gly Tyr
 195 200 205

Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 210 215 220

Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 225 230 235 240

Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 245 250 255

Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 260 265 270

Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 275 280 285

Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 290 295 300

Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 305 310 315 320

Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 325 330 335

Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 340 345 350

Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 355 360 365

Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 370 375 380

Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 385 390 395 400

Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 405 410 415

Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys
 420 425 430

Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 435 440 445

Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Ser Met Ala
 450 455 460

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 465 470 475 480

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 485 490 495

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 500 505

<210> 18
 <211> 509
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 18

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Ser Gly Arg Gly Lys
 165 170 175

Gly Gly Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Ile
 180 185 190

Leu Arg Asp Asn Ile Gln Gly Ile Ser Gly Ser Pro Ile Leu Gly Tyr
 195 200 205

Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 210 215 220
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 225 230 235 240
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 245 250 255
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 260 265 270
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 275 280 285
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 290 295 300
 Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 305 310 315 320
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 325 330 335
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 340 345 350
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 355 360 365
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 370 375 380
 Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 385 390 395 400
 Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 405 410 415
 Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys
 420 425 430
 Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 435 440 445
 Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Ser Met Ala
 450 455 460

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 465 470 475 480

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 485 490 495

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 500 505

<210> 19
 <211> 541
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 19

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Phe Met Ala Arg Thr
 165 170 175
 Lys Gln Thr Ala Arg Lys Ser Thr Gly Gly Lys Ala Pro Arg Lys Gln
 180 185 190
 Leu Ala Ser Lys Ala Ala Arg Lys Ser Ala Pro Ser Thr Gly Gly Val
 195 200 205
 Lys Lys Pro His Arg Tyr Lys Pro Gly Thr Val Ala Leu Arg Glu Ile
 210 215 220
 Arg Arg Phe Gln Lys Ser Thr Glu Pro Gly Ser Pro Ile Leu Gly Tyr
 225 230 235 240
 Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 245 250 255
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 260 265 270
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 275 280 285
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 290 295 300
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 305 310 315 320
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 325 330 335
 Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 340 345 350
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 355 360 365
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 370 375 380
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 385 390 395 400
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 405 410 415

Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
420 425 430

Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
435 440 445

Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys
450 455 460

Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
465 470 475 480

Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala
485 490 495

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
500 505 510

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
515 520 525

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
530 535 540

<210> 20
<211> 541
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 20

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95
 Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110
 Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125
 Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140
 Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160
 Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Phe Met Ala Arg Thr
 165 170 175
 Lys Gln Thr Ala Arg Lys Ser Thr Gly Gly Lys Ala Pro Arg Lys Gln
 180 185 190
 Leu Ala Ser Lys Ala Ala Arg Lys Ser Ala Pro Ser Thr Gly Gly Val
 195 200 205
 Lys Lys Pro His Arg Tyr Lys Pro Gly Thr Val Ala Leu Arg Glu Ile
 210 215 220
 Arg Arg Phe Gln Lys Ser Thr Glu Pro Gly Ser Pro Ile Leu Gly Tyr
 225 230 235 240
 Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 245 250 255
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 260 265 270
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 275 280 285
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 290 295 300
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 305 310 315 320
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 325 330 335

Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 340 345 350
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 355 360 365
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 370 375 380
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 385 390 395 400
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 405 410 415
 Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 420 425 430
 Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 435 440 445
 Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys
 450 455 460
 Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 465 470 475 480
 Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala
 485 490 495
 Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 500 505 510
 Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 515 520 525
 Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 530 535 540

<210> 21
 <211> 509
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 21

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Ser Gly Arg Gly Lys
 165 170 175

Gly Gly Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Ile
 180 185 190

Leu Arg Asp Asn Ile Gln Gly Ile Ser Gly Ser Pro Ile Leu Gly Tyr
 195 200 205

Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 210 215 220
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 225 230 235 240
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 245 250 255
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 260 265 270
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 275 280 285
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 290 295 300
 Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 305 310 315 320
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 325 330 335
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 340 345 350
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 355 360 365
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 370 375 380
 Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 385 390 395 400
 Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 405 410 415
 Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys
 420 425 430
 Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
 435 440 445
 Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Ser Met Ala
 450 455 460

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
 465 470 475 480

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
 485 490 495

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 500 505

<210> 22
 <211> 509
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 22

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
 1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Thr Thr Met Ser Gly Arg Gly Lys
 165 170 175
 Gly Gly Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Ile
 180 185 190
 Leu Arg Asp Asn Ile Gln Gly Ile Ser Gly Ser Pro Ile Leu Gly Tyr
 195 200 205
 Trp Lys Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly
 210 215 220
 Arg Gly Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu
 225 230 235 240
 Glu Ile Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp
 245 250 255
 Lys Glu Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly
 260 265 270
 Ser Glu Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe
 275 280 285
 Asp Gly Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu
 290 295 300
 Asn Glu Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys
 305 310 315 320
 Glu Asn Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln
 325 330 335
 Leu Pro Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg
 340 345 350
 Ser His Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly
 355 360 365
 Gly Ile Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val
 370 375 380
 Phe Cys Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His
 385 390 395 400
 Leu Met Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys
 405 410 415

Tyr Phe Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys
420 425 430

Gln Gly Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly
435 440 445

Tyr Ile Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Ser Met Ala
450 455 460

Ile Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr
465 470 475 480

Ala Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr
485 490 495

Asp Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
500 505

<210> 23
<211> 475
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 23

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Gly Ser Pro Ile Leu Gly Tyr Trp Lys
 165 170 175

Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly
 180 185 190

Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile
 195 200 205

Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu
 210 215 220

Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu
 225 230 235 240

Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly
 245 250 255

Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu
 260 265 270

Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn
 275 280 285

Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro
 290 295 300

Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His
 305 310 315 320

Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile
 325 330 335

Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys
 340 345 350

Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met
 355 360 365

Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe
370 375 380

Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys Gln Gly
385 390 395 400

Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile
405 410 415

Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro
420 425 430

Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly
435 440 445

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val
450 455 460

Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
465 470 475

<210> 24
<211> 475
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 24

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
100 105 110
Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
115 120 125
Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
130 135 140
Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
145 150 155 160
Lys Lys Glu Ile Glu Phe Gln Gly Ser Pro Ile Leu Gly Tyr Trp Lys
165 170 175
Gly Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly
180 185 190
Asp Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile
195 200 205
Gln Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu
210 215 220
Asn Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu
225 230 235 240
Val Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly
245 250 255
Val Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu
260 265 270
Gly Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn
275 280 285
Met Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro
290 295 300
Lys Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His
305 310 315 320
Leu Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile
325 330 335
Thr Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys
340 345 350

Ala Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met
355 360 365

Asn His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe
370 375 380

Leu Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys Gln Gly
385 390 395 400

Phe Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile
405 410 415

Lys Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro
420 425 430

Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly
435 440 445

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val
450 455 460

Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
465 470 475

<210> 25
<211> 486
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 25

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95
 Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110
 Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125
 Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140
 Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160
 Lys Lys Glu Ile Glu Phe Gln Gly Thr Met His Glu Leu Pro Arg Leu
 165 170 175
 Glu Pro Gly Ser Pro Ile Leu Gly Tyr Trp Lys Gly Arg Arg Asp His
 180 185 190
 Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly Asp Pro Glu Val Lys
 195 200 205
 Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile Gln Pro Glu Gln Ala
 210 215 220
 Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu Asn Lys Gly Lys Phe
 225 230 235 240
 Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu Val Val Thr Asp Val
 245 250 255
 Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly Val Glu Tyr Thr Phe
 260 265 270
 Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu Gly Lys Ile Glu Phe
 275 280 285
 Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn Met Met Val Leu Thr
 290 295 300
 Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro Lys Met Pro Lys Glu
 305 310 315 320
 Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His Leu Ser Met Ala Val
 325 330 335

Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile Thr Tyr Arg Pro Phe
340 345 350

Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys Ala Ile Ser Ser Thr
355 360 365

Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met Asn His Leu Lys Asp
370 375 380

Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe Leu Thr Tyr Ala Asp
385 390 395 400

Asn Tyr Ala Ile Gly Tyr Phe Lys Lys Gln Gly Phe Thr Lys Glu Ile
405 410 415

Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile Lys Asp Tyr Glu Gly
420 425 430

Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro Gly Gly Gly Arg Ile
435 440 445

Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Tyr Pro Tyr Asp Val
450 455 460

Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ala
465 470 475 480

Gln Cys Gly Arg Ser Ser
485

<210> 26
<211> 486
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 26

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Gly Thr Met His Glu Leu Pro Arg Leu
 165 170 175

Glu Pro Gly Ser Pro Ile Leu Gly Tyr Trp Lys Gly Arg Arg Asp His
 180 185 190

Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly Asp Pro Glu Val Lys
 195 200 205

Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile Gln Pro Glu Gln Ala
 210 215 220

Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu Asn Lys Gly Lys Phe
 225 230 235 240

Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu Val Val Thr Asp Val
 245 250 255

Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly Val Glu Tyr Thr Phe
 260 265 270

Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu Gly Lys Ile Glu Phe
 275 280 285

Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn Met Met Val Leu Thr
 290 295 300

Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro Lys Met Pro Lys Glu
305 310 315 320

Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His Leu Ser Met Ala Val
325 330 335

Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile Thr Tyr Arg Pro Phe
340 345 350

Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys Ala Ile Ser Ser Thr
355 360 365

Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met Asn His Leu Lys Asp
370 375 380

Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe Leu Thr Tyr Ala Asp
385 390 395 400

Asn Tyr Ala Ile Gly Tyr Ala Lys Lys Gln Gly Phe Thr Lys Glu Ile
405 410 415

Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile Lys Asp Tyr Glu Gly
420 425 430

Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro Gly Gly Gly Arg Ile
435 440 445

Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Tyr Pro Tyr Asp Val
450 455 460

Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ala
465 470 475 480

Gln Cys Gly Arg Ser Ser
485

<210> 27

<211> 570

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 27

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
145 150 155 160

Lys Lys Glu Ile Glu Phe Gln Leu Pro Gly Ser Thr Lys Arg Ala Leu
165 170 175

Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys Lys Pro Leu Asp
180 185 190

Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu Arg Phe Glu Met
195 200 205

Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp Ala Gln Ala Gly
210 215 220

Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His Leu Lys Ser Lys
225 230 235 240

Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met Phe Lys Thr Glu
 245 250 255
 Gly Pro Asp Ser Asp Pro Gly Ser Pro Ile Leu Gly Tyr Trp Lys Gly
 260 265 270
 Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly Asp
 275 280 285
 Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile Gln
 290 295 300
 Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu Asn
 305 310 315 320
 Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu Val
 325 330 335
 Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly Val
 340 345 350
 Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu Gly
 355 360 365
 Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn Met
 370 375 380
 Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro Lys
 385 390 395 400
 Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His Leu
 405 410 415
 Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile Thr
 420 425 430
 Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys Ala
 435 440 445
 Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met Asn
 450 455 460
 His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe Leu
 465 470 475 480
 Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Phe Lys Lys Gln Gly Phe
 485 490 495

Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile Lys
500 505 510

Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro Gly
515 520 525

Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Tyr
530 535 540

Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val Pro
545 550 555 560

Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
565 570

<210> 28
<211> 570
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 28

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
1 5 10 15

Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140
 Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160
 Lys Lys Glu Ile Glu Phe Gln Leu Pro Gly Ser Thr Lys Arg Ala Leu
 165 170 175
 Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys Lys Pro Leu Asp
 180 185 190
 Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu Arg Phe Glu Met
 195 200 205
 Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp Ala Gln Ala Gly
 210 215 220
 Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His Leu Lys Ser Lys
 225 230 235 240
 Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met Phe Lys Thr Glu
 245 250 255
 Gly Pro Asp Ser Asp Pro Gly Ser Pro Ile Leu Gly Tyr Trp Lys Gly
 260 265 270
 Arg Arg Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly Arg Gly Asp
 275 280 285
 Pro Glu Val Lys Arg Val Lys Leu Glu Asn Asn Val Glu Glu Ile Gln
 290 295 300
 Pro Glu Gln Ala Glu Thr Asn Lys Gln Glu Gly Thr Asp Lys Glu Asn
 305 310 315 320
 Lys Gly Lys Phe Glu Lys Glu Thr Glu Arg Ile Gly Gly Ser Glu Val
 325 330 335
 Val Thr Asp Val Glu Lys Gly Ile Val Lys Phe Glu Phe Asp Gly Val
 340 345 350
 Glu Tyr Thr Phe Lys Glu Arg Pro Ser Val Val Glu Glu Asn Glu Gly
 355 360 365
 Lys Ile Glu Phe Arg Val Val Asn Asn Asp Asn Thr Lys Glu Asn Met
 370 375 380

Met Val Leu Thr Gly Leu Lys Asn Ile Phe Gln Lys Gln Leu Pro Lys
385 390 395 400

Met Pro Lys Glu Tyr Ile Ala Arg Leu Val Tyr Asp Arg Ser His Leu
405 410 415

Ser Met Ala Val Ile Arg Lys Pro Leu Thr Val Val Gly Gly Ile Thr
420 425 430

Tyr Arg Pro Phe Asp Lys Arg Glu Phe Ala Glu Ile Val Phe Cys Ala
435 440 445

Ile Ser Ser Thr Glu Gln Val Arg Gly Tyr Gly Ala His Leu Met Asn
450 455 460

His Leu Lys Asp Tyr Val Arg Asn Thr Ser Asn Ile Lys Tyr Phe Leu
465 470 475 480

Thr Tyr Ala Asp Asn Tyr Ala Ile Gly Tyr Ala Lys Lys Gln Gly Phe
485 490 495

Thr Lys Glu Ile Thr Leu Asp Lys Ser Ile Trp Met Gly Tyr Ile Lys
500 505 510

Asp Tyr Glu Gly Gly Thr Leu Met Gln Cys Asn Met Ala Ile Pro Gly
515 520 525

Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Tyr
530 535 540

Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp Val Pro
545 550 555 560

Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
565 570

<210> 29
<211> 8708
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 29
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ttctttttttt ttctttttctc tctcccccggt tgttggtctca ccatatccgc aatgacaaaa 180
aaatgatgga agacactaaa ggaaaaaatt aacgacaaaag acagcaccaa cagatgtcgt 240
tgttccagag ctgatgaggg gtatctcgaa gcacacgaaa ctttttcctt ccttcattga 300
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agcctcctga aagatgaagc tactgtcttc tatcgaacaa gcatgcgata tttgccgact 480
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taaaccatgg agaatatccc attcgccgca gcaaagaaac ccgaattcaa aaataccttc 1380
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cgactgaaa gtaatggaga aggaagaaat aataaagtat aatttacaga aacaattcag 1680
aaggagggtta gaaatacaaa catcgctaaa tcatccgaat ctaactaaat catacggcta 1740
ttttcatgat gaaaaaagag tgtacctgct aatggaatac ttagtcaatg gggaaatgta 1800
taaactattg aggttacacg gacccttcaa cgatatttta gcatcagatt atatttatca 1860

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| tgaaaatata ctaatagggg tcaataatgt cattaagtta acggacttcg gatggagtat | 1980 |
| aataaatccg ccagaaaata gaaggaaaac tgtctgtggg acaattgact acctttctcc | 2040 |
| agaaatggtg gagtcaaggg aatatgatca cactatagat gcatgggctc ttggcgctct | 2100 |
| ggcgtttgaa ctactgaccg gtgcccctcc gttcgaagaa gaaatgaaag atactacata | 2160 |
| taaaaggata gcagcactgg atatcaaaat gcccagtaac atttctcagg atgcgcaaga | 2220 |
| tttaatactt aaactactaa aatacgaccc caaagataga atgcgccttg gagacgtaaa | 2280 |
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| gcccatcttt tttttggacc taaattcttc atgaaaatat attacgaggg cttattcaga | 2760 |
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| taccttgcca gaaatttacg aaaagatgga aaaggggtcaa atcgttggta gatacgttgt | 2880 |
| tgacacttct aaataagcga atttcttatg atttatgatt tttattatta aataagttat | 2940 |
| aaaaaaaaata agtgtataca aattttaaag tgactcttag gttttaaaac gaaaattctt | 3000 |
| attcttgagt aactctttcc tgtaggctcag gttgctttct cagggtatagc atgaggtcgc | 3060 |
| tcttattgac cacacctcta ccggcatgcc gagcaaatgc ctgcaaatcg ctccccattt | 3120 |
| cacccaattg tagatatgct aactccagca atgagttgat gaatctcggg gtgtatttta | 3180 |
| tgctctcaga ggacaacacc tggtgtaatc gttcttcac acggatcctg gcgtaatagc | 3240 |
| gaagaggccc gcaccgatcg ccttcccaa cagttgcgca gcctgaatgg cgaatggcgc | 3300 |
| ctgatgcggg attttctcct tacgcatctg tgcggtatct cacaccgcat atatcgctgg | 3360 |
| gccattctca tgaagaatat cttgaattta ttgtcatatt actagttggg gtggaagtcc | 3420 |
| atatatcggg gatcaatata gtggttgaca tgctggctag tcaacattga gccttttgat | 3480 |
| catgcaaata tattacggta ttttacaatc aaatatcaaa cttaactatt gactttataa | 3540 |
| cttatttagg tggtaacatt cttataaaaa agaaaaaat tactgcaaaa cagtactagc | 3600 |
| ttttaacttg tctctaggt tatctatgct gtctcaccat agagaatatt acctatttca | 3660 |
| gaatgtatgt ccatgattcg ccgggtaaat acatataata cacaaatctg gcttaataaa | 3720 |

| | | | | | | |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| gtctataata | tatctcataa | agaagtgcta | aattggctag | tgctatatat | ttttaagaaa | 3780 |
| atctcttttg | actaagtcca | tatcgacttt | gtaaaagttc | acttttagcat | acatatatta | 3840 |
| cacgagccag | aaattgtaac | ttttgcctaa | aatcacaaat | tgcaaaattt | aattgcttgc | 3900 |
| aaaaggtcac | atgcttataa | tcaacttttt | taaaaattta | aaatactttt | ttattttttta | 3960 |
| tttttaaaaca | taaatgaaat | aatttattta | ttgtttatga | ttaccgaaac | ataaaacctg | 4020 |
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Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
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Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
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Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
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Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
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Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
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130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
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Lys Lys Glu Ile Glu Phe Gln Glu Asn Leu Tyr Phe Gln Gly Leu Thr
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Gly Ser Pro Ile Leu Gly Tyr Trp Lys Gly Arg Arg Asp His Pro Pro
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 325 330 335
 Ser Ser Lys Ile Pro Ser Pro Ile Arg Lys Ala Thr Ser Ser Lys Met
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 Asp Phe Glu Leu Gly Lys Lys Leu Gly Lys Gly Lys Phe Gly Lys Val
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 Ser Tyr Gly Tyr Phe His Asp Glu Lys Arg Val Tyr Leu Leu Met Glu
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 Tyr Leu Val Asn Gly Glu Met Tyr Lys Leu Leu Arg Leu His Gly Pro
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 Phe Asn Asp Ile Leu Ala Ser Asp Tyr Ile Tyr Gln Ile Ala Asn Ala
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 Leu Asp Tyr Met His Lys Lys Asn Ile Ile His Arg Asp Ile Lys Pro
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Glu Asn Ile Leu Ile Gly Phe Asn Asn Val Ile Lys Leu Thr Asp Phe
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Gly Trp Ser Ile Ile Asn Pro Pro Glu Asn Arg Arg Lys Thr Val Cys
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Gly Thr Ile Asp Tyr Leu Ser Pro Glu Met Val Glu Ser Arg Glu Tyr
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Asp His Thr Ile Asp Ala Trp Ala Leu Gly Val Leu Ala Phe Glu Leu
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Leu Thr Gly Ala Pro Pro Phe Glu Glu Glu Met Lys Asp Thr Thr Tyr
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Lys Arg Ile Ala Ala Leu Asp Ile Lys Met Pro Ser Asn Ile Ser Gln
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Asp Ala Gln Asp Leu Ile Leu Lys Leu Leu Lys Tyr Asp Pro Lys Asp
595 600 605

Arg Met Arg Leu Gly Asp Val Lys Met His Pro Trp Ile Leu Arg Asn
610 615 620

Lys Pro Phe Trp Glu Asn Lys Arg Leu Glu Leu Met Ala Ile Pro Gly
625 630 635 640

Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Tyr
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| ttcttttttt | ttctttttctc | tctcccccg | tggtgtctca | ccatatccgc | aatgacaaaa | 180 |
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| ggagtgtcgc | tactctccca | aaacccaaa | gtctccgctg | actagggcac | atctgacaga | 600 |
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| ccttgacatg | attttgaaaa | tggattcttt | acaggatata | aaagcattgt | taacaggatt | 720 |
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| ggatccggga | tcgaagaaat | gatggtaaat | gaaataggaa | atcaaggagc | atgaaggcaa | 7440 |
| aagacaaata | taagggtcga | acgaaaaata | aagtgaaaag | tgttgatatg | atgtatttgg | 7500 |
| ctttgcggcg | ccgaaaaaac | gagtttacgc | aattgcacaa | tcatgctgac | tctgtggcgg | 7560 |
| accgcgcctc | ttgccggccc | ggcgataacg | ctgggcgtga | ggctgtgccc | ggcggagttt | 7620 |
| tttgcgccctg | cattttccaa | ggttttaccct | gcgctaaggg | gcgagattgg | agaagcaata | 7680 |
| agaatgccgg | ttgggggttc | gatgatgacg | accacgacaa | ctgggtgtcat | tatttaagtt | 7740 |
| gccgaaagaa | cctgagtgca | tttgcaacat | gagtatacta | gaagaatgag | ccaagacttg | 7800 |
| cgagacgcga | gtttgccggg | ggtgcgaaca | atagagcgac | catgaccttg | aaggtgagac | 7860 |
| gcgcataacc | gctagagtac | tttgaagagg | aaacagcaat | agggttgcta | ccagtataaa | 7920 |
| tagacaggta | catacaacac | tggaaatggg | tgtctgtttg | agtaacgttt | caattcatth | 7980 |
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35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
145 150 155 160

Lys Lys Glu Ile Glu Leu Glu Asn Leu Tyr Phe Gln Gly Glu Phe Gln
165 170 175

Tyr Ser Pro Thr Ser Pro Ser Tyr Ser Leu Thr Ser Pro Ser Tyr Ser
180 185 190

Pro Thr Ser Pro Ser Leu Thr Thr Met Ala Met Lys Val Asn Met Glu
195 200 205

Tyr Thr Lys Glu Lys Lys Val Gly Glu Gly Thr Tyr Ala Val Val Tyr
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Leu Gly Cys Gln His Ser Thr Gly Arg Lys Ile Ala Ile Lys Glu Ile
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Lys Thr Ser Glu Phe Lys Asp Gly Leu Asp Met Ser Ala Ile Arg Glu
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 Asp Ile Phe Met Ala Tyr Asp Asn Leu Asn Leu Val Leu Glu Phe Leu
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 Ala Arg Ala Ile Pro Ala Pro His Glu Ile Leu Thr Ser Asn Val Val
 355 360 365
 Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Phe Gly Ala Lys His Tyr
 370 375 380
 Thr Ser Ala Ile Asp Ile Trp Ser Val Gly Val Ile Phe Ala Glu Leu
 385 390 395 400
 Met Leu Arg Ile Pro Tyr Leu Pro Gly Gln Asn Asp Val Asp Gln Met
 405 410 415
 Glu Val Thr Phe Arg Ala Leu Gly Thr Pro Thr Asp Arg Asp Trp Pro
 420 425 430
 Glu Val Ser Ser Phe Met Thr Tyr Asn Lys Leu Gln Ile Tyr Pro Pro
 435 440 445
 Pro Ser Arg Asp Glu Leu Arg Lys Arg Phe Ile Ala Ala Ser Glu Tyr
 450 455 460
 Ala Leu Asp Phe Met Cys Gly Met Leu Thr Met Asn Pro Gln Lys Arg
 465 470 475 480
 Trp Thr Ala Val Gln Cys Leu Glu Ser Asp Tyr Phe Lys Glu Leu Pro
 485 490 495

Pro Pro Ser Asp Pro Ser Ser Ile Lys Ile Arg Asn Val Met Ala Ile
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Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
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Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
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ccttgacatg attttgaaaa tggattcttt acaggatata aaagcattgt taacaggatt 720
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| tgaggggtact | tatgcggttg | tttacttggg | ttgtcaacac | tctactggaa | gaaagattgc | 1140 |
| tattaaggag | atcaaaacat | ccgaatttaa | agatggttta | gatatgtcag | ctatccgtca | 1200 |
| acttaagtac | ctccaagaaa | tgcagcatcc | gaacgtcata | gaactaatag | acatatattat | 1260 |
| ggcttatgat | aatttaaate | tcgttctgga | gttcctacca | actgatctag | aggtggtaat | 1320 |
| aaaagacaaa | tcaatactgt | ttacaccagc | agatattaag | gcatggatgc | ttatgacttt | 1380 |
| gaggggcggtg | tatcattgcc | acagaaattt | cattttgcac | agggatctga | aaccaaacia | 1440 |
| tttattattt | tcacctgatg | gccagataaa | agtagcagat | ttcgggtctag | caagggcgat | 1500 |
| accggcccca | catgagatac | tgacaagtaa | cgtcgtaaca | agatgggtata | gagcgccaga | 1560 |
| attgttggtt | ggagctaaac | attacacatc | ggctattgat | atctgggtcag | taggcgttat | 1620 |
| attcgcgga | ttaatgctaa | ggatacctta | tttaccagga | cagaatgatg | tcgatcaaat | 1680 |
| ggaagtaacg | ttcagggcct | tagggacacc | tacagataga | gattggccccg | aagtttcttc | 1740 |
| ctttatgacg | tataacaagt | tacaaatata | tccgccccct | tcaagagatg | aattgaggaa | 1800 |
| aaggttcatt | gctgctagcg | aatacgcctt | agattttatg | tgtggaatgc | taacgatgaa | 1860 |
| cccacaaaag | aggtggaccg | ctgttcagtg | tttagaaagt | gattatttca | aagaattacc | 1920 |
| accaccaagt | gacccgtctt | caataaaaaat | acgtaacgtc | atggcaattc | ccggtggcgg | 1980 |
| ccgcatcttt | taccatacag | atgttcctga | ctatgcgggc | tatccctatg | acgtcccgga | 2040 |
| ctatgcagga | tcctatccat | atgacgttcc | agattacgct | gctcagtgcg | gccgctctag | 2100 |
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| taacctctga | tctatagaat | tttttaaagt | actagaatta | atgcccatct | tttttttggg | 2340 |
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| ttcttataaa | aaagaaaaaa | attactgcaa | aacagtacta | gcttttaact | tgtatcctag | 3240 |
| gttatctatg | ctgtctcacc | atagagaata | ttacctat | cagaatgtat | gtccatgatt | 3300 |
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| ttaaactctt | tacagaaaat | aggcattata | gatcagttcg | agttttctta | ttcttccttc | 3780 |
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| cacaaacaat | acttaaataa | atactactca | gtaataacct | atttcttagc | atttttgacg | 4560 |
| aaatttgcta | ttttgttaga | gtcttttaca | ccatttgtct | ccacacctcc | gcttacatca | 4620 |
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| cgaaacacgc | caaccaagta | tttcggagtg | cctgaactat | ttttatatgc | ttttacaaga | 5040 |
| cttgaaattt | tccttgcaat | aaccgggtca | attgttctct | ttctattggg | cacacatata | 5100 |
| ataccagca | agtcagcatc | ggaatctagt | gcacattctg | cggcctctgt | gctctgcaag | 5160 |
| ccgcaaactt | tcaccaatgg | accagaacta | cctgtgaaat | taataacaga | catactccaa | 5220 |
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| tcatgaccaa | aatcccttaa | cgtgagtttt | cgttccactg | agcgtcagac | cccgtagaaa | 6540 |
| agatcaaagg | atcttcttga | gatccttttt | ttctgcgcgt | aatctgctgc | ttgcaaacaa | 6600 |
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| agttaggcca | ccacttcaag | aactctgtag | caccgcctac | atacctcgct | ctgctaatacc | 6780 |
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| gagagcgcac | gagggagctt | ccagggggaa | acgcctggta | tctttatagt | cctgtcgggt | 7080 |
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| atattaatta | aagtccaatg | ctagtagaga | aggggggtaa | caccctccg | cgctcttttc | 8100 |
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| tatggacttc | ctcttttctg | gcaaccaaac | ccatacatcg | ggattcctat | aataccttcg | 8220 |
| ttggtctccc | taacatgtag | gtggcggagg | ggagatatat | aatagaacag | ataccagaca | 8280 |
| agacataatg | ggctaaacaa | gactacacca | attacactgc | ctcattgatg | | 8330 |

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<220>
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<400> 38

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Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 65 70 75 80

Leu Lys Met Asp Ser Leu Gln Asp Ile Lys Ala Leu Leu Thr Gly Leu
 85 90 95

Phe Val Gln Asp Asn Val Asn Lys Asp Ala Val Thr Asp Arg Leu Ala
 100 105 110

Ser Val Glu Thr Asp Met Pro Leu Thr Leu Arg Gln His Arg Ile Ser
 115 120 125

Ala Thr Ser Ser Ser Glu Glu Ser Ser Asn Lys Gly Gln Arg Gln Leu
 130 135 140

Thr Val Ser Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro
 145 150 155 160

Lys Lys Glu Ile Glu Leu Glu Asn Leu Tyr Phe Gln Gly Glu Phe Gln
 165 170 175

Tyr Ser Pro Thr Ser Pro Ser Tyr Ser Leu Thr Ser Pro Ser Tyr Ser
 180 185 190

Pro Thr Ser Pro Ser Leu Thr Thr Met Ala Met Lys Val Asn Met Glu
 195 200 205

Tyr Thr Lys Glu Lys Lys Val Gly Glu Gly Thr Tyr Ala Val Val Tyr
 210 215 220
 Leu Gly Cys Gln His Ser Thr Gly Arg Lys Ile Ala Ile Lys Glu Ile
 225 230 235 240
 Lys Thr Ser Glu Phe Lys Asp Gly Leu Asp Met Ser Ala Ile Arg Gln
 245 250 255
 Val Lys Tyr Leu Gln Glu Met Gln His Pro Asn Val Ile Glu Leu Ile
 260 265 270
 Asp Ile Phe Met Ala Tyr Asp Asn Leu Asn Leu Val Leu Glu Phe Leu
 275 280 285
 Pro Thr Asp Leu Glu Val Val Ile Lys Asp Lys Ser Ile Leu Phe Thr
 290 295 300
 Pro Ala Asp Ile Lys Ala Trp Met Leu Met Thr Leu Arg Gly Val Tyr
 305 310 315 320
 His Cys His Arg Asn Phe Ile Leu His Arg Asp Leu Lys Pro Asn Asn
 325 330 335
 Leu Leu Phe Ser Pro Asp Gly Gln Ile Lys Val Ala Asp Phe Gly Leu
 340 345 350
 Ala Arg Ala Ile Pro Ala Pro His Glu Ile Leu Thr Ser Asn Val Val
 355 360 365
 Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Phe Gly Ala Lys His Tyr
 370 375 380
 Thr Ser Ala Ile Asp Ile Trp Ser Val Gly Val Ile Phe Ala Glu Leu
 385 390 395 400
 Met Leu Arg Ile Pro Tyr Leu Pro Gly Gln Asn Asp Val Asp Gln Met
 405 410 415
 Glu Val Thr Phe Arg Ala Leu Gly Thr Pro Thr Asp Arg Asp Trp Pro
 420 425 430
 Glu Val Ser Ser Phe Met Thr Tyr Asn Lys Leu Gln Ile Tyr Pro Pro
 435 440 445
 Pro Ser Arg Asp Glu Leu Arg Lys Arg Phe Ile Ala Ala Ser Glu Tyr
 450 455 460

Ala Leu Asp Phe Met Cys Gly Met Leu Thr Met Asn Pro Gln Lys Arg
 465 470 475 480

Trp Thr Ala Val Gln Cys Leu Glu Ser Asp Tyr Phe Lys Glu Leu Pro
 485 490 495

Pro Pro Ser Asp Pro Ser Ser Ile Lys Ile Arg Asn Val Met Ala Ile
 500 505 510

Pro Gly Gly Gly Arg Ile Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 515 520 525

Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Tyr Pro Tyr Asp
 530 535 540

Val Pro Asp Tyr Ala Ala Gln Cys Gly Arg Ser Ser
 545 550 555